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Section D – Media

Part 2: Steam, condensate, heating

The following delivery specifications of Wieland-Werke AG form part of the contract.
Any deviating specifications are to be agreed upon between the supplier/contractor and Wieland, and documented.

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The following apply to	Piping and components	German Construction Contract Procedures (<i>Vergabe- und Vertragsordnung für Bauleistungen</i> , VOB), “Technische Regeln” (accepted codes of good engineering practice), provisions of DIN/EN standards
	Heating systems etc.:	DIN 4750, DIN 4751 or DIN EN 12828, DIN 4752 or DIN EN 12953-6

1. Media used

Vöhringen plant:

Steam condition:
Hot water network in acc. with DIN 4751 or DIN EN 12828

Saturated steam $p = 1.3 \text{ bar}_g$, $T = 125 \text{ °C}$
- Building 61 + 64 flow 80 °C / return 60 °C
- Building 83 flow 80 °C / return 60 °C (variable)
- Building 36 flow 80 °C / return 60 °C

Design in principle as low as possible

Ulm plant:

Hot water network in acc. with DIN 4751 or DIN EN 12828

- North: 90 °C / 70 °C
- South: 80 °C / 60 °C (regulated depending on outdoor temperature)
- Offices: 55 °C / 45 °C

Langenberg plant:

Hot water network in acc. with DIN 4751 or DIN EN 12828

- Flow 80 °C / return 60 °C

Villingen plant:

No hot water network available

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2. Specifications for the Ulm, Vöhringen, Villingen, Langenberg plants**Pipeline installation:**

Thermal expansion must be taken into account by including expansion compensators in the design. Fastenings shall be executed as slide bearings, guide bearings or fixed points. Fastening materials in galvanised finish.

Fastening points on buildings as well as wall and ceiling openings must be agreed with the building owner. Pipe clamps on hot water pipes must be executed with sound-absorbing rubber. Drain and bleed points must be installed at appropriate points (preferably accessible from production building / mill corridor). Each pipeline shall undergo a documented pressure test with leak-tightness check. The consumption of each consumer shall be recorded by a heat meter.

Pipe splitters: - Inlets and outlets can be shut off
- Equipped with pressure gauge, thermometer and drain

Heating systems and process heat consumers on the pump hot water heating network shall be connected via heating manifolds. Equipped with booster pump, electrically pressure-monitored dirt trap, electric motor butterfly valve, heat meter and pressure and temperature measurement.

3. Selection of materials and fittings

Generally pressure class is \geq **PN10**

3.1 Piping

Always scale-free, like new and in swept clean condition for large diameters

For steam and condensate:

Steel tube DIN 2448 or DIN EN 10220, DIN 1629 sheet 2, seamless, black, S235JR or 1.0037 with material certification

For hot water:

- SANCO/WICU copper installation tube in acc. with DIN 1786 or DIN EN 1057 SF-CU with DVGW mark (**make Wieland**)
Installed in acc. with DIN 1988 and DVGW worksheet GW2 using fittings for soldering or brazing in acc. with DIN 2856 or DIN EN 1254
- Steel tubes:
Up to DN 50 seamless threaded tubes in acc. with DIN 2440 or DIN EN 10255, DIN 1620 sheet 2
From DN 65 seamless boiler tubes in acc. with DIN 2448 or DIN EN 10220, DIN 1629 sheet 2

Joining methods:

Welding, soldering, brazing, press connections, crimp connections, e.g. VIEGA

3.2 SealsSteam and condensate network:

Pure graphite seal with perforated steel insert and inner eyelet made of 1.4571 with DVGW approval
(Wieland stock items group M173-18)

Heating systems:

Hard fibre gasket, anti-stick coating, permissible continuous use range: -50 to +250°C, but to be used only up to 100 °C!
(Wieland stock items group M174-04)

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3.3 Fittings**3.3.1 Shutoff devices**Steam/condensate:

- Bellows-type globe valve, make KSB, type BOA-H made of GG25 with stainless seal and stainless stem
- Butterfly valves, metal sealing, offset disc, make VIA type MS or KSB type DANAIS
- Gate valve, metal sealing, make VAG

Hot water:

- Valve make KSB, type BOA-W up to DN 50
or KSB, type Compact, make ARI, type WEDI, or make TA Heimeier type Staf
- For simple application and only with approval:
Butterfly valve lug type, ring GGG40 / stainless steel disc / EPDM seal
- Ball valve with full flow, e.g. make Böhmer
- Main shutoff at mains connection, metal sealing valve, slide valve or ball valve, e.g. make KSB type BOA-H, make VAG type Iko-Plus, make Persta, make Böhmer

3.3.2 Safety valves

Spring-loaded full lift valve, flange or socket connection, angle type

3.3.3 Check valves

- Make Noreva, type ZBF
- DISCO non-return valve, make Gestra, type RK 44
- For flow velocities >1.5 m/s and DN >80:
Dual-plate check valve, make Gestra type DISCOCHECK BB 14G
- Make Reiche, type PowerFlow

3.3.4 Temperature and pressure regulators

Make RTK, Samson, Siemens

3.3.5 Steam traps

Thermodynamic steam trap, make Gestra, BK 45

3.3.6 Pressure gauges

Bourdon tube pressure gauge with damping fluid, display range according to application, class 1.0 with pressure gauge shutoff valve, with siphon when used in steam and condensate lines, make Haenni/Wika/Tecson

3.3.7 Thermometers

Bimetallic dial thermometer Ø 100, class 1.0, make Haenni/Wika/Tecson

3.3.8 Dirt traps

Stainless steel strainer insert <0.25 mm mesh size, with drain

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3.4 Heating system components**3.4.1 Radiators**

Radiator with integrated valve, make Kermit, with thermostatic valve

3.4.2 Radiator control valves

Thermostatic valves for steam: Make Pruss

Thermostatic valves for hot water: Make Danfoss/Heimeier

3.4.3 Pumps

- Heating circulation pumps (wet rotor) 230 V or 400 V make Grundfos or WILO (if necessary pressure/frequency controlled)
- Inline pumps, make Grundfos
- Standardised centrifugal pumps 400 V (and/or 500 V in certain parts of the Vöhringen plant), German make

3.4.4 Heat exchangers

- Primary steam / secondary hot water: Shell and tube heat exchanger, make Baelz
- Primary hot water / secondary water, alkaline solution, acid: Plate heat exchanger, material according to requirements, make Kelvion/Alfa Laval/Otto/Thermowave

3.5 Flow and heat quantity measurement

Each meter requires as signal output:

ModbusRTU, 4-20 mA or 0-20 mA

- Heat: Magnetic-inductive (MID) meters, make Endress+Hauser / Sensus / Kamstrup (Molline)
- Hot water: As for heat or turbine wheel meter, make Sensus, with pulse contact, socket or flanged version
- Condensate: As above, but high temperature resistant

3.6 Drinking water hygiene**3.6.1 Fresh water stations**

To ensure legionella-free hot water provision, fresh water stations based on the continuous flow principle must be used. Depending on the size of the system, the fresh water station can or must be supplemented by a buffer tank.

- Make Sailer
- An electric heating element is to be provided depending on requirements and subject to consultation.

3.6.2 Continuous flow hot water heaters

If there are only a few to one end users in the immediate vicinity, small storage water heaters should be avoided and for hygiene reasons a continuous flow water heater should be used.

- Suggested make Clage